

AD-A102 756 ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND WS--ETC F/6 4/2  
19304D MLRS, MISSILE NUMBERS BK-003, V01-005, V01-006, ROUND NU--ETC(U)  
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DR 1188  
June 1981

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METEOROLOGICAL DATA REPORT

19304D MLRS

Missile Numbers BK-003, V01-005, V01-006  
Round Numbers V-155/MD-22, V-156/MD-23, V-157/MD-24  
19 June 1981

by

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Program Support Coordinator  
Phone Number (505) 679-9568  
AVN Number 349-9568



ATMOSPHERIC SCIENCES LABORATORY  
WHITE SANDS MISSILE RANGE, NEW MEXICO

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**ECOM**  
UNITED STATES ARMY ELECTRONICS COMMAND

818 12019

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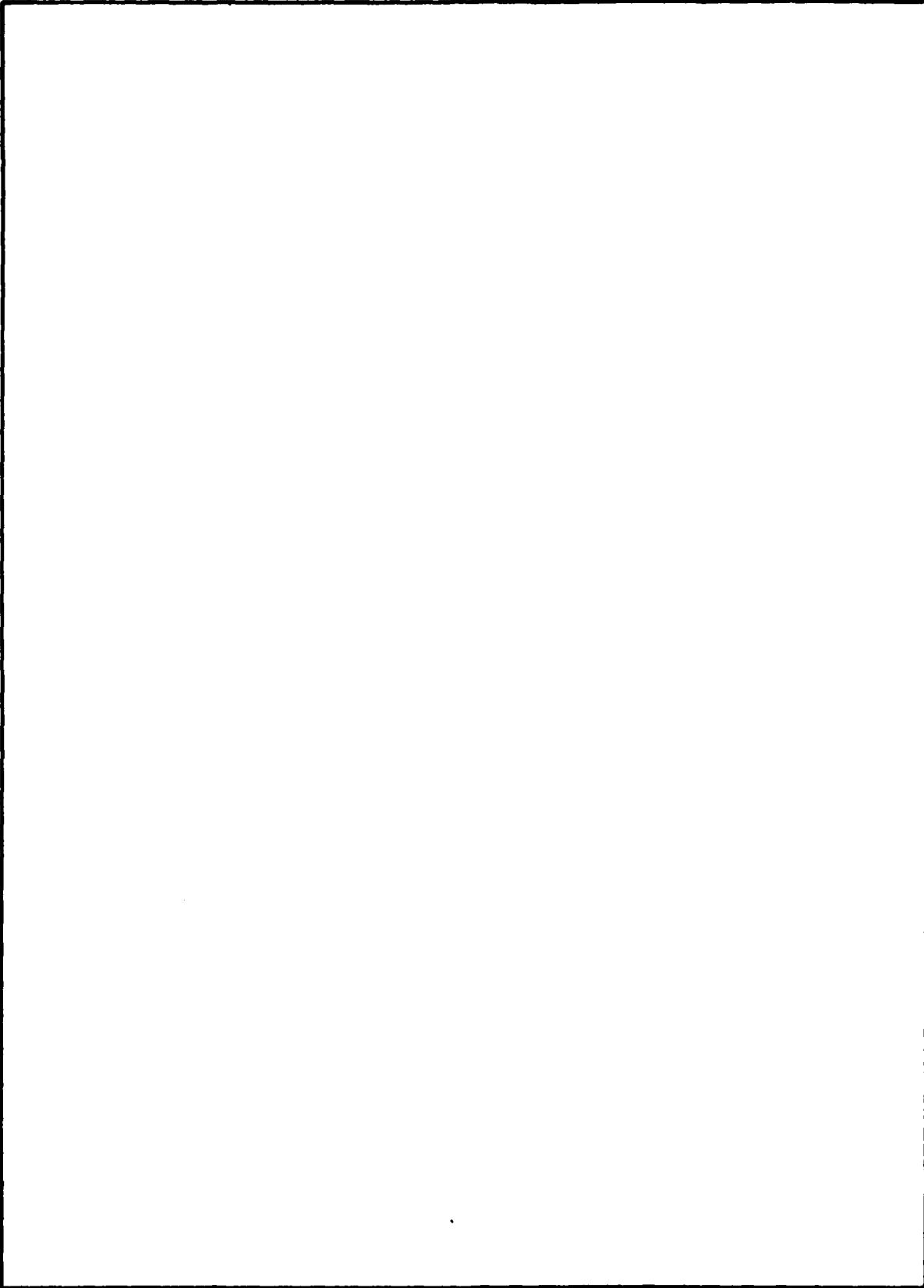
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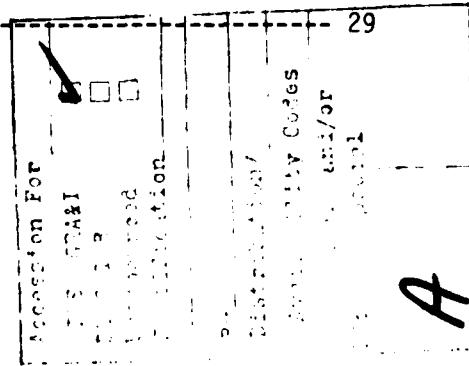
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## CONTENTS

	PAGE
INTRODUCTION-----	1
DISCUSSION-----	1
LAUNCH AREA MAP-----	2
GENERAL AREA MAP-----	3
 TABLES:	
1. Surface Observation taken at 1730 MDT at LC-33-----	4
2. Anemometer-Measured Wind Speed and Direction, LC-33 Fixed Pole, taken at 1730 MDT-----	5
3. Anemometer-Measured Wind Speed and Direction, Tower Levels 1, 2, 3, and 4, taken at 1730 MDT-----	5
4. T-Time Pilot-Balloon Measured Wind Data-----	6
5. Aiming and T-Time Computer Met Messages-----	7
6. WSD Significant Level Data at 1435 MDT-----	8
7. WSD Upper Air Data at 1435 MDT-----	9
8. WSD Mandatory Levels at 1435 MDT-----	14
9. LC-37 Significant Level Data at 1530 MDT-----	15
10. LC-37 Upper Air Data at 1530 MDT-----	16
11. LC-37 Mandatory Levels at 1530 MDT-----	19
12. WSD Significant Level Data at 1630 MDT-----	20
13. WSD Upper Air Data at 1630 MDT-----	21
14. WSD Mandatory Levels at 1630 MDT-----	24
15. LC-37 Significant Level Data at 1730 MDT-----	25
16. LC-37 Upper Air Data at 1730 MDT-----	26
17. LC-37 Mandatory Levels at 1730 MDT-----	29



## INTRODUCTION

19304D MLRS, Missile Numbers BK-003, V01-006, and V01-006, Round Numbers V-155/MD-22, V-156/MD-23, and V-157/MD-24, were launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 1730:01, 1730:05, and 1730:10 MDT, 19 June 1981. The scheduled launch times were 1730, 1730:04.5, and 1730:09 MDT.

## DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

### 1. Observation:

#### a. Surface

(1) Standard surface observations to include pressure, temperature ( $^{\circ}\text{C}$ ), relative humidity, dew point ( $^{\circ}\text{C}$ ), density ( $\text{gm}/\text{m}^3$ ), wind direction and speed, and cloud cover were made at the LC-33 Met Site at T-0 minutes.

(2) Anemometer data were provided from existing pole-mounted and tower-mounted anemometers at LC-33. Monitor of wind speed and direction from one anemometer was also provided in the launch control room.

#### b. Upper Air:

(1) Low level wind data were obtained from Pilot-Balloon observations at:

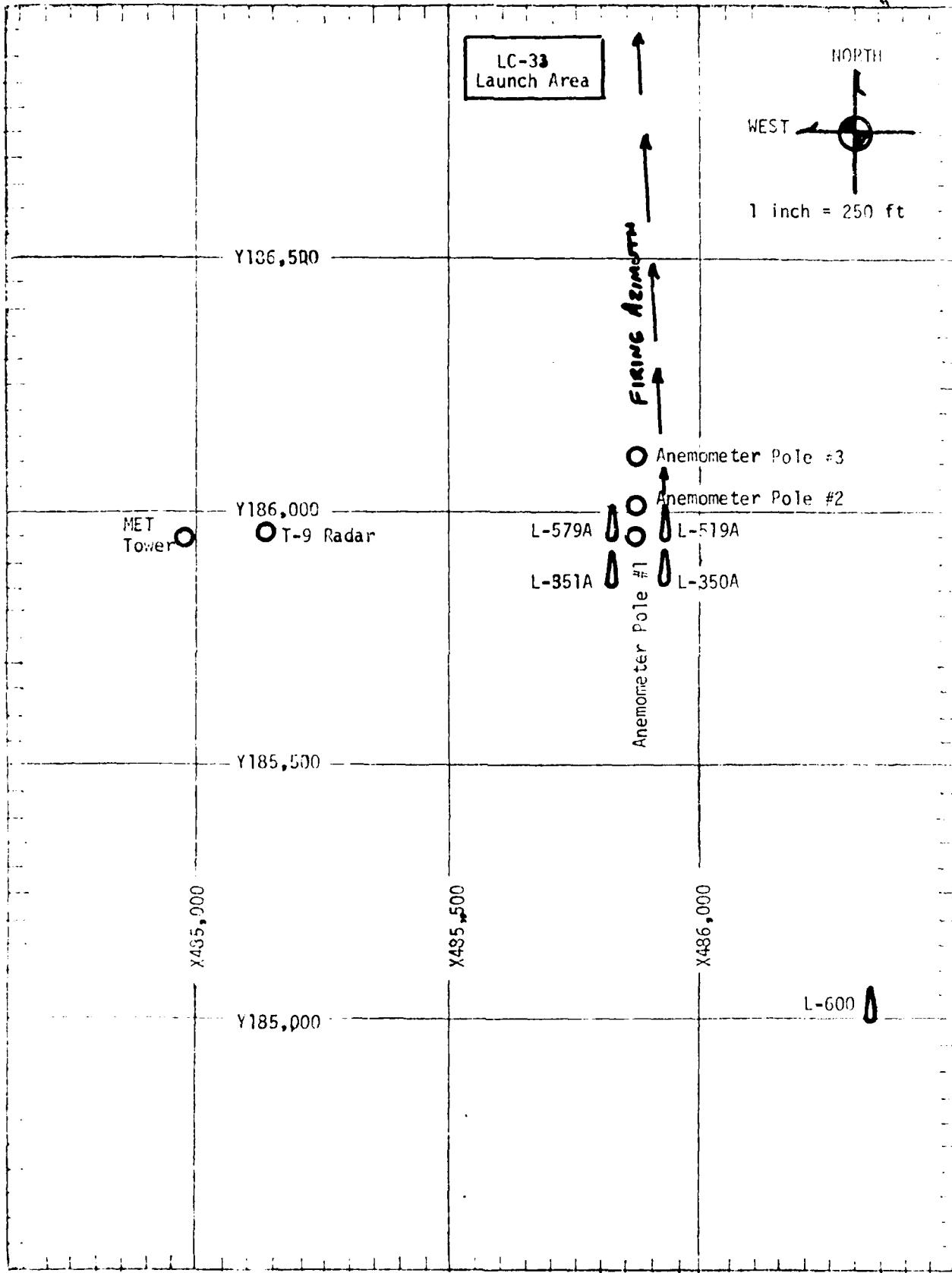
### SITE AND ALTITUDE

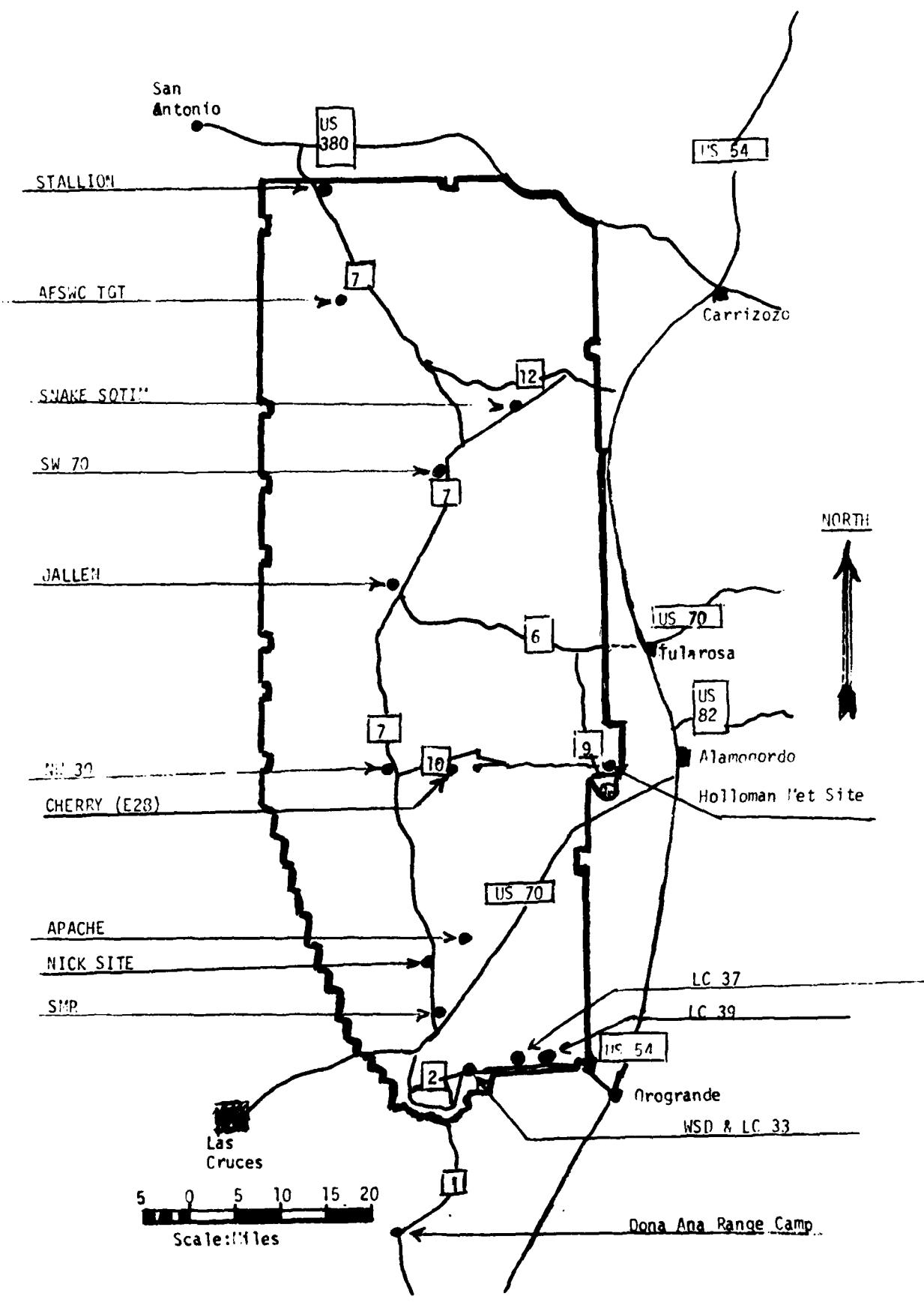
LC-33	2 KM
NICK	2 KM

(2) Air structure data (rawinsonde) were collected at the following Met Sites:

### SITE AND TIME

WSD	1435 MDT
LC-37	1530 MDT
WSD	1630 MDT
LC-37	1730 MDT





## PROJECT SURFACE OBSERVATION

TABLE 1

DATE 19    JUNE    1981  
DAY    MONTH    YEAR

TIME H D I	PRESSURE mb	TEMPERATURE OF °C	DEW POINT OF °C	RELATIVE HUMIDITY %	DENSITY gm/m <sup>3</sup>	MIND SPEED kts	CHARACTER kts	VISIBIL- ITY
1730	876.3	38.0	-7.3	5	974	200	06	G22

OBSTRUCTIONS TO VISIBILITY	CLOUDS			REMARKS		
	1st LAYER AMT	1st LAYER TYPE	2nd LAYER AMT	2nd LAYER TYPE	3rd LAYER AMT	3rd LAYER TYPE
0	CU	8000	-	-	-	-

## PSYCHROELRIC COMPUTATION

TIME:	MDT	1730	
DRY BULB TEMP.		38.0	
WET BULB TEMP.		14.7	
WET BULB DEP.		23.3	
DEW POINT		-7.3	
RELATIVE HUMID.		5	

TABLE 2 LC-33 FIXED POLE ANEMOMETER MEASURED WINDS  
1730 MDT  
19 June 1981

POLE #1			POLE #2			POLE #3		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	279	03	T-30	285	06	T-30	283	05
T-20	275	03	T-20	289	05	T-20	270	04
T-10	282	03	T-10	306	05	T-10	273	03
T0.0	300	02	T0.0	309	04	T0.0	284	02
T+10	300	01	T+10	330	04	T+10	286	01

TABLE 3 LC-33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (202 FT TOWER)

LEVEL #1, 12 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #2, 62 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	315	02	T-30	308	03
T-20	314	02	T-20	285	03
T-10	288	02	T-10	262	04
T0.0	259	02	T0.0	241	04
T+10	243	04	T+10	240	05

LEVEL #3, 102 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #4, 102 FEET X484,982, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	252	04	T-30	228	04
T-20	252	04	T-20	236	06
T-10	252	03	T-10	236	06
T0.0	243	04	T0.0	234	05
T+10	237	04	T+10	237	04

TABLE 4

T-TIME PILOT-BALLOON MEASURED WITH T-10  
 DATE 19 June 1981

SITE: LC-33  
 TIME: 1730 MDT  
 WSTM COORDINATES:  
 X= 485,135.76  
 Y= 185,919.24  
 H= 3988.57

SITE: NICK  
 TIME: 1730 MDT  
 WSTM COORDINATES:  
 X= 470,734.56  
 Y= 255,775.64  
 H= 4126.57

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS	LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	270	03	SURFACE	340	03
150	275	03	150	299	09
210	277	03	210	309	10
270	279	04	270	290	08
330	280	04	330	275	06
390	280	04	390	253	05
500	280	05	500	258	06
650	280	06	650	278	09
800	281	05	800	307	09
950	284	05	950	331	07
1150	282	05	1150	313	09
1350	281	05	1350	333	09
1550	281	04	1550	330	11
1750	287	04	1750	335	12
2000	283	04	2000	337	11

Data obtained from Single Theodolite tracked Pilot-Balloon observation.

Data obtained from T-9 radar tracked Pilot-Balloon observation.

TABLE 5

AIMING AND T-Time COMPUTER MET MESSAGES  
19 June 1981

WSD 1435 MDT	LC-37 1530 MDT	WSD 1630 MDT
METCM1324064	METCM1324063	METCM1324064
192060122878	192150124874	192250122877
00213002 31050878	00373005 31300874	00320007 31220877
01286003 30970868	01421007 31010865	01353020 31120867
02223001 30750845	02418007 30750841	02303018 30860843
03383003 30360808	03418004 30370804	03319016 30470807
04394003 29870763	04478003 29900760	04326008 29970762
05459006 29370720	05621002 29440718	05350004 29400720
06398009 28900680	06427002 28920677	06389003 28900679
07397008 28440640	07448012 28420638	07394010 28460640
08446007 27980603	08453007 27920601	08395008 28000602

LC-37 1730 MDT  
METCM1324063  
192350124873  
00356005 31110873  
01464010 31040864  
02344009 30850840  
03370010 30460804  
04392010 29960760  
05301007 29450717  
06389006 28930677  
07432007 28420637  
08456010 27930600

STATION ALTITUDE 3989.00 FEET MSL  
19 JUNE 81 1435 HRS MDT  
ASCENSION NO. 399

SIGNIFICANT LEVEL DATA

17000<sub>c</sub> 0.599

WHITE SANDS

EQUATORIAL COORDINATES  
52°40'43" LAT DEG  
106°37'33" LONG DEG

TABLE 6

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENIGRADE	REL.HUM. PERCENT
877.8	3989.0	36.9	14.0
850.0	4647.4	33.1	25.0
736.8	9097.7	21.4	29.0
700.0	10544.8	17.2	31.0
627.6	1553.0	6.1	31.0
534.6	17435.3	-2.9	39.0
500.0	19569.3	-5.9	28.0
486.2	20290.2	-6.0	25.0
400.0	25200.6	-17.5	30.0
346.4	29111.9	-27.5	38.0
300.0	32009.9	-33.3	34.0
265.4	36868.8	-39.8	31.0
250.0	36264.2	-42.7	
226.4	38591.4	-46.4	
200.0	41074.9	-51.4	
172.6	44187.2	-57.3	
150.0	47073.2	-63.1	
127.2	51384.3	-67.4	
106.2	55933.3	-71.8	
100.0	55106.8	-70.8	
70.0	62286.9	-64.9	
50.0	69109.1	-56.2	
42.8	72371.2	-56.5	
32.8	78066.5	-47.8	
50.0	80018.8	-46.8	
23.0	85860.3	-45.8	
20.0	88967.5	-41.9	

STATION ALTITUDE 3989.00 FEET MSL  
19 JUNE 81 1435 HRS MDT  
ASCENSION NO. 399

UPPER AIR DATA  
17000±0.599  
WHITE SANDS

GEODETIC COORDINATES  
32°40'04.3 LAT DEG  
106.37033 LON DEG

TABLE 7

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	DEWPOINT DEGREES	REL. HUM. PERCENT	DENSITY GM/CURDLIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	INDEX OF REFRACTION
3989.0	877.8	36.9	5.0	14.0	982.6	687.3	120.0	1.9
4000.0	877.5	36.9	5.1	14.1	982.3	687.2	120.1	1.9
4500.0	862.9	34.9	8.5	19.9	971.1	685.4	123.6	1.6
5000.0	848.5	33.0	10.3	25.1	960.2	683.5	129.1	1.3
5500.0	834.0	31.5	9.4	25.5	948.4	681.9	187.5	1.0
6000.0	819.7	30.1	8.5	26.0	936.8	680.2	214.2	2.0
6500.0	805.7	28.7	7.6	26.5	925.3	678.5	215.9	2.9
7000.0	792.0	27.3	6.7	27.0	914.0	676.9	210.1	2.5
7500.0	776.5	25.9	5.7	27.5	902.8	675.2	219.7	2.2
8000.0	765.2	24.5	4.8	27.9	891.8	673.5	220.3	2.0
8500.0	752.1	23.1	3.8	28.4	880.9	671.9	225.9	2.5
9000.0	739.3	21.7	2.8	28.9	870.2	670.2	248.7	4.4
9500.0	726.4	20.2	1.9	29.6	859.4	668.5	250.0	5.7
10000.0	713.6	18.8	1.0	30.2	848.6	666.8	248.6	6.7
10500.0	701.1	17.3	.0	30.9	838.0	665.1	237.6	7.2
11000.0	688.6	16.0	-1.1	31.0	827.1	663.5	228.9	8.1
11500.0	676.2	14.6	-2.3	31.0	816.2	661.8	224.6	9.3
12000.0	664.1	13.3	-3.5	31.0	805.5	660.2	224.2	9.0
12500.0	652.2	11.9	-4.6	31.0	794.9	658.6	223.5	8.3
13000.0	640.5	10.6	-5.8	31.0	784.5	657.0	224.0	7.7
13500.0	629.0	19.2	-7.0	31.0	774.3	655.4	228.9	7.5
14000.0	617.4	7.8	-7.9	31.8	763.8	653.7	238.5	7.2
14500.0	605.9	6.4	-8.7	32.8	753.4	652.1	251.7	7.0
15000.0	594.6	5.0	-9.6	33.7	743.7	650.4	266.4	7.4
15500.0	583.6	3.6	-10.5	34.6	733.2	648.7	278.3	8.3
16000.0	572.7	2.2	-11.4	35.6	723.3	647.0	286.4	9.2
16500.0	562.1	.8	-12.3	36.5	713.5	645.4	291.9	10.1
17000.0	551.6	-6	-13.3	37.4	703.9	643.7	298.1	10.5
17500.0	541.4	-2.0	-14.2	38.4	693.4	642.0	307.0	10.4
18000.0	531.2	-3.2	-15.5	38.0	684.6	640.5	324.8	9.9
18500.0	521.1	-4.0	-17.3	34.8	673.8	639.4	348.6	10.3
19000.0	511.1	-4.9	-19.2	31.6	663.6	638.4	354.9	10.7
19500.0	501.3	-5.8	-21.1	28.4	652.7	637.5	358.8	11.0
20000.0	491.7	-6.0	-22.2	26.2	640.6	637.1	346.7	10.1
20500.0	482.2	-6.5	-23.1	25.2	629.4	636.4	334.4	9.7
21000.0	472.7	-7.6	-23.9	25.7	619.8	635.0	331.4	9.6
21500.0	463.4	-8.8	-24.6	26.2	610.2	633.6	328.5	9.5
22000.0	454.3	-9.9	-25.4	26.7	600.9	632.5	326.2	9.4
22500.0	445.4	-11.1	-26.2	27.2	591.7	630.9	325.8	9.2
23000.0	436.7	-12.2	-27.0	27.8	582.6	629.5	321.5	9.0

STATION ALTITUDE 3489.00 FT-ET MSL  
19 JUNE 01 1435 HRS ADT  
ASCENSION NO. 399

UPPER AIR DATA  
170000Z0399  
WHITE SANDS

GEODETIC COORDINATES  
32°40'43" LAT DEG  
106°37'03" LON DEG

TABLE 7 CON'T

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	DEWPOINT CENTIGRADE	REL.HUM. PERCENT	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	INDEX OF REFRACTION
25500.0	428.1	-13.4	-27.8	28.3	573.7	628.1	8.9
24000.0	419.7	-14.5	-28.7	28.8	565.0	626.7	9.2
24500.0	411.4	-15.7	-29.5	29.3	556.4	625.3	9.5
25000.0	403.4	-16.8	-30.3	29.8	547.9	623.9	9.9
25500.0	395.2	-18.1	-31.1	30.6	539.5	622.4	10.3
26000.0	387.2	-19.4	-31.9	31.6	531.2	620.7	11.2
26500.0	379.2	-20.7	-32.8	32.6	523.1	619.1	12.0
27000.0	371.5	-22.0	-33.6	33.7	515.0	617.5	12.9
27500.0	363.9	-23.3	-34.5	34.7	507.1	615.9	13.8
28000.0	356.4	-24.6	-35.4	35.7	499.4	614.3	14.9
28500.0	349.1	-25.9	-36.3	36.7	491.8	612.7	15.9
29000.0	342.0	-27.2	-37.2	37.8	484.3	611.0	17.5
29500.0	334.8	-28.3	-38.2	37.5	476.2	609.7	19.1
30000.0	327.7	-29.2	-39.3	36.8	468.0	608.5	19.5
30500.0	320.8	-30.2	-40.4	36.1	460.1	607.3	19.3
31000.0	314.0	-31.2	-41.4	35.4	452.1	606.0	18.7
31500.0	307.4	-32.2	-42.5	34.8	444.3	604.8	18.0
32000.0	300.9	-33.2	-43.5	34.1	436.7	603.6	17.8
32500.0	294.4	-34.3	-44.7	33.5	429.3	602.1	18.7
33000.0	288.0	-35.5	-45.9	33.0	422.1	600.7	19.5
33500.0	281.8	-36.6	-47.1	32.5	415.0	599.2	19.2
34000.0	275.7	-37.8	-48.3	31.9	408.0	597.7	18.8
34500.0	269.7	-38.9	-49.5	31.4	401.1	596.2	18.3
35000.0	263.8	-40.1	-51.5	27.9*	394.3	594.8	17.6
35500.0	258.0	-41.2	-56.8	16.3**	387.4	593.4	17.0
36000.0	252.3	-42.3	-67.0	4.7**	380.6	592.0	16.6
36500.0	246.7	-43.2			373.7	590.8	16.0
37000.0	241.1	-44.0			366.7	589.7	15.1
37500.0	235.7	-44.9			359.8	588.6	14.3
38000.0	230.5	-45.7			353.0	587.5	13.1
38500.0	225.3	-46.6			346.4	586.4	11.8
39000.0	220.1	-47.5			339.9	585.2	11.0
39500.0	215.1	-48.5			333.5	584.0	10.8
40000.0	210.2	-49.4			327.2	582.7	11.5
40500.0	205.4	-50.3			321.1	581.5	12.8
41000.0	200.7	-51.3			315.1	580.3	14.2
41500.0	196.0	-52.2			309.1	579.1	15.9
42000.0	191.4	-53.2			303.1	577.8	17.5
42500.0	187.0	-54.1			297.3	576.6	17.9
43000.0	182.6	-55.0			291.6	575.3	17.6

\*\* AT LEAST ONE A&S, M&C, OR LATITUDE COORDINATE VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3489.00 FT ET MSL  
 19 JUNE 61 1435 HRS WDT  
 ASCENSION NO. 399

UPPER AIR DATA  
 1700020399  
 WHITE SANUS

GEODETIC COORDINATES  
 32°40.043 LAT UEG  
 106.37033 LON UEG

TABLE 7 CON'T

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	DEWPOINT CENTIGRADE	REL.HUM. PERCENT	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	INDEX OF REFRACTION
45500.0	178.3	-56.0			286.0	574.1	313.4
44000.0	174.1	-56.9			280.6	572.8	313.3
44500.0	170.0	-57.9			275.2	571.5	313.7
45000.0	165.9	-58.9			269.8	570.2	316.1
45500.0	161.9	-59.9			264.6	568.9	318.6
46000.0	158.0	-60.9			259.4	567.5	319.6
46500.0	154.2	-61.9			254.4	566.2	320.1
47000.0	150.5	-63.0			249.5	564.8	317.4
47500.0	146.8	-63.7			244.2	563.9	311.2
48000.0	143.2	-64.3			238.9	563.0	306.0
48500.0	139.7	-65.0			233.8	562.1	301.9
49000.0	136.3	-65.6			228.7	561.2	298.4
49500.0	132.9	-66.3			223.8	560.4	298.1
50000.0	129.7	-66.9			219.0	559.5	303.2
50500.0	126.5	-67.5			214.3	558.6	307.6
51000.0	123.3	-68.2			209.5	557.8	313.1
51500.0	120.2	-68.8			204.9	556.9	319.5
52000.0	117.2	-69.4			200.3	556.1	325.7
52500.0	114.2	-70.0			195.9	555.2	327.0
53000.0	111.4	-70.6			191.6	554.4	328.9
53500.0	108.6	-71.3			187.3	553.5	329.2
54000.0	105.8	-71.7			183.1	552.9	327.3
54500.0	103.2	-71.3			178.1	553.5	325.3
55000.0	100.5	-70.9			173.2	554.1	326.5
55500.0	98.0	-70.5			168.5	554.6	327.9
56000.0	95.6	-70.1			164.0	555.2	329.9
56500.0	93.2	-69.6			159.6	555.6	336.6
57000.0	90.9	-69.2			155.3	556.3	343.9
57500.0	88.6	-68.8			151.1	556.9	356.3
58000.0	86.4	-68.4			147.1	557.5	21.1
58500.0	84.3	-68.0			143.1	558.0	50.5
59000.0	82.2	-67.6			139.3	558.6	65.5
59500.0	80.1	-67.1			135.5	559.2	76.3
60000.0	78.2	-66.7			131.9	559.7	84.9
60500.0	76.2	-66.3			128.3	560.3	90.4
61000.0	74.3	-65.9			124.9	560.9	96.7
61500.0	72.5	-65.5			121.6	561.4	104.2
62000.0	70.7	-65.1			118.3	562.0	114.2
62500.0	69.9	-64.5			115.1	562.7	127.9
63000.0	67.3	-63.9			112.0	563.6	134.2

STATION ALTITUDE 3489.00 FEET MSL  
 19 JUNE 81 1435 HRS MDT  
 ASCENSION NO. 399

UPPER AIR DATA  
 1700020399  
 WHITE SANDS

GEODETIC COORDINATES  
 32°40.043 LAT DEG  
 106.37033 LON DEG

TABLE 7 CON'T

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREE CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	DIRECTION DEGREES (TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
63500.0	65.7	-63.2	109.0	564.4	141.7	3.4	1.000024	
64000.0	64.1	-62.6	106.1	565.3	156.1	1.9	1.000024	
64500.0	62.6	-62.0	103.2	566.1	95.9	3.7	1.000023	
65000.0	61.1	-61.4	100.4	566.9	82.0	6.8	1.000022	
65500.0	59.6	-60.7	97.7	567.8	83.4	10.1	1.000022	
66000.0	58.2	-60.1	95.1	568.6	92.9	13.9	1.000021	
66500.0	56.8	-59.5	92.5	569.5	98.2	18.0	1.000021	
67000.0	55.4	-58.8	90.1	570.3	101.2	18.4	1.000020	
67500.0	54.1	-58.2	87.6	571.1	104.2	16.9	1.000020	
68000.0	52.8	-57.6	85.3	572.0	107.8	15.4	1.000019	
68500.0	51.5	-57.0	83.0	572.8	101.4	12.4	1.000018	
69000.0	50.3	-56.3	80.8	573.6	90.0	9.6	1.000018	
69500.0	49.1	-56.2	78.8	573.8	77.1	8.3	1.000018	
70000.0	47.9	-56.3	77.0	573.7	81.6	10.7	1.000017	
70500.0	46.8	-56.3	75.2	573.7	84.5	13.1	1.000017	
71000.0	45.7	-56.4	73.4	573.6	85.9	15.1	1.000016	
71500.0	44.6	-56.4	71.7	573.5	86.3	16.7	1.000016	
72000.0	43.6	-56.5	70.0	573.5	86.7	18.2	1.000016	
72500.0	42.5	-56.3	68.3	573.7	85.0	19.3	1.000015	
73000.0	41.6	-55.5	66.5	574.7	82.5	20.3	1.000015	
73500.0	40.6	-54.8	64.8	575.7	80.2	21.2	1.000014	
74000.0	39.7	-54.0	63.1	576.7	80.0	23.0	1.000014	
74500.0	38.7	-53.2	61.4	577.7	81.2	25.0	1.000014	
75000.0	37.9	-52.5	59.8	578.7	81.8	27.0	1.000013	
75500.0	37.0	-51.7	58.2	579.7	82.6	27.9	1.000013	
76000.0	36.1	-51.0	56.6	580.7	83.5	28.7	1.000013	
76500.0	35.3	-50.2	55.1	581.7	84.2	29.6	1.000012	
77000.0	34.5	-49.4	53.7	582.7	86.0	29.5	1.000012	
77500.0	33.7	-48.7	52.3	583.7	89.3	29.3	1.000012	
78000.0	32.9	-47.9	50.9	584.7	92.1	29.1	1.000011	
78500.0	32.2	-47.6	49.7	585.1	93.9	28.6	1.000011	
79000.0	31.4	-47.3	48.5	585.4	95.5	28.0	1.000011	
79500.0	30.7	-47.1	47.3	585.8	97.1	27.4	1.000011	
80000.0	30.0	-46.8	46.2	586.1	94.4	26.3	1.000010	
80500.0	29.4	-46.7	45.2	586.2	89.1	25.2	1.000010	
81000.0	28.7	-46.6	44.1	586.3	83.4	24.3	1.000010	
81500.0	28.0	-46.5	43.1	586.4	84.2	23.9	1.000010	
82000.0	27.4	-46.5	42.1	586.6	90.6	24.0	1.000009	
82500.0	26.8	-46.4	41.2	586.7	96.9	24.4	1.000009	
83000.0	26.2	-46.3	40.2	586.8	103.0	25.1	1.000009	

STATION ALTITUDE 3989.00 FEET ASL  
 19 JUNE 61 1435 HRS MDT  
 ASCENSION NO. 399

UPPER AIR DATA  
 1700020399  
 WHITE SANDS  
 TABLE 7 CON'T

GFMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	DEMPPOINT CENTIGRADE	REL.HUM. PERCENT	SPEED OF SOUND METER KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
83500.0	25.6	-46.2		39.3	586.9	109.1	26.1	1.000009
84000.0	25.0	-46.1		38.4	587.0	114.6	27.3	1.000009
84500.0	24.5	-46.0		37.5	587.1	119.0	28.7	1.000008
85000.0	23.9	-45.9		36.7	587.2	116.3	27.1	1.000008
85500.0	23.4	-45.9		35.8	587.3	112.6	25.5	1.000008
86000.0	22.9	-45.6		35.0	587.6	108.4	24.0	1.000008
86500.0	22.3	-45.0		34.1	588.4			1.000008
87000.0	21.9	-44.4		33.3	589.3			1.000007
87500.0	21.4	-43.7		32.4	590.1			1.000007
88000.0	20.9	-43.1		31.6	590.9			1.000007
88500.0	20.4	-42.5		30.8	591.7			1.000007

STATION ALTITUDE 3989.00 FT Elevation  
19 JUNE 81 1435 HRS MDT  
ASCENSION NO. 399

MANDATORY LEVELS  
1700020399  
WHITE SANDS  
TABLE 8

GEODETIC COORDINATES  
52.40043 LAT DEG  
106.37033 LON DEG

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE DEGREES	AIR DEGREES	DEWPNT CENTIGRADE	REL.HUM. PERCENT	WIND DATA	
						DIRECTION DEGREES (TN)	SPEED KNOTS
850.0	4944.	33.1	10.4	25.	128.4	1.3	
800.0	6723.	28.1	7.2	27.	212.3	2.7	
750.0	8583.	22.9	3.7	29.	227.0	2.6	
700.0	10534.	17.2	-0.1	31.	236.7	7.3	
650.0	12588.	11.7	-4.9	31.	223.3	8.2	
600.0	14761.	5.7	-9.2	33.	259.8	7.2	
550.0	17070.	-0.8	-13.4	38.	299.6	10.5	
500.0	19541.	-5.9	-21.4	28.	357.5	10.9	
450.0	22232.	-10.5	-25.8	27.	325.0	9.3	
400.0	25168.	-17.3	-30.7	30.	313.5	10.0	
350.0	28398.	-25.7	-36.2	37.	330.8	15.8	
300.0	32005.	-33.3	-43.7	34.	320.6	17.9	
250.0	36124.	-42.7			319.2	16.4	
200.0	40974.	-51.4			307.2	14.4	
175.0	43785.	-56.7			313.3	15.8	
150.0	46944.	-65.1			316.7	11.6	
125.0	50532.	-67.8			309.5	20.4	
100.0	54934.	-70.8			326.7	11.6	
80.0	59313.	-67.1			75.9	11.0	
70.0	61971.	-64.9			118.1	7.4	
60.0	65086.	-60.9			78.5	8.6	
50.0	68845.	-56.2			87.8	9.2	
40.0	73501.	-54.3			80.2	22.1	
30.0	79673.	-46.8			94.6	26.4	
25.0	83645.	-46.1			114.4		
20.0	88545.	-41.9			27.3		

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 4051.37 FEET MSL  
19 JUNE 81 1530 HRS MDT  
ASCENSION NO. 129

SIGNIFICANT LEVEL DATA  
1700180129  
LC-37

GEODETIC COORDINATES  
32.40175 LAT DEG  
106.31232 LON DEG

TABLE 9

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE FEET MSL	TEMPERATURE DEGREES CENTIGRADE	AIR DEWPONT DEGREES CENTIGRADE	REL.HUM. PERCENT
874.4	4051.4	39.0	-1.2	8.0
867.7	4281.8	35.7	6.0	16.0
848.4	4950.9	34.0	4.6	16.0
700.0	10509.0	18.8	-6.0	18.0
666.0	11899.1	13.9	-9.3	19.0
619.0	13904.2	8.1	-11.8	23.0
574.4	15910.9	2.2	-13.1	31.0
548.4	17134.8	-.5	-16.3	29.0
506.8	19187.8	-5.9	-23.6	23.0
500.0	19535.5	-6.2	-26.0	19.0
482.0	20478.3	-6.5	-27.4	17.0
450.0	22231.7	-10.2	-30.5	17.0
419.4	24003.1	-14.2	-32.7	19.0
400.0	25177.9	-17.5	-35.5	19.0
340.0	29106.4	-27.4	-39.3	31.0
300.0	32037.3	-33.3	-45.8	27.0
282.2	33442.7	-36.6	-49.4	25.0
270.2	34427.6	-39.8		
250.0	36162.5	-43.6		
230.6	37940.7	-46.4		
200.0	41021.9	-51.4		
190.0	42113.0	-54.2		
167.2	44791.2	-58.1		
158.8	45853.4	-61.4		
150.0	47014.0	-63.3		

STATION ALTITUDE 4051.37 FEET MSL  
19 JUNE 81 1500 HRS MDT  
ASCENSION NO. 129

UPPER AIR DATA  
1700180129  
LC-37

TABLE 10

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREE CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WINO DATA DIRECTION DEGREES (TN)	INDEX OF REFRACTION
4051.4	874.4	39.0	-1.2	8.0	973.5	210.0	5.1
4500.0	861.4	35.1	5.6	16.0	969.4	213.3	4.7
5000.0	847.0	33.9	4.6	16.0	957.4	217.6	4.3
5500.0	832.4	32.5	3.6	16.2	945.4	222.8	3.9
6000.0	818.2	31.1	2.7	16.4	933.5	229.0	3.6
6500.0	804.1	29.8	1.7	16.6	921.8	236.4	3.3
7000.0	790.3	28.4	.8	16.7	910.2	245.0	3.0
7500.0	776.8	27.0	-2	16.9	898.8	252.6	2.6
8000.0	763.5	25.7	-1.1	17.1	887.6	261.1	2.1
8500.0	750.4	24.3	-2.1	17.3	876.5	274.8	1.7
9000.0	737.5	22.9	-3.0	17.5	865.6	293.0	1.2
9500.0	724.9	21.6	-4.0	17.6	854.8	326.4	.8
10000.0	712.4	20.2	-5.0	17.8	844.2	368.0	-8
10500.0	700.2	18.8	-6.0	18.0	833.7	666.4	.6
11000.0	687.8	17.1	-7.2	18.4	824.0	664.3	4.6
11500.0	675.6	15.3	-8.3	18.7	814.4	662.3	250.9
12000.0	663.6	13.6	-9.4	19.2	804.7	660.3	249.8
12500.0	651.6	12.2	-10.0	20.2	794.2	658.6	251.4
13000.0	639.8	10.7	-10.6	21.2	783.9	656.9	252.3
13500.0	628.2	9.3	-11.2	22.2	773.7	655.2	255.2
14000.0	616.8	7.8	-11.8	23.4	763.6	653.5	258.4
14500.0	605.4	6.3	-12.0	25.4	753.4	651.8	260.1
15000.0	594.2	4.9	-12.3	27.4	743.4	650.1	262.4
15500.0	583.3	3.4	-12.8	29.4	733.6	648.4	280.0
16000.0	572.5	2.0	-13.4	30.9	723.7	646.7	294.4
16500.0	561.7	.9	-14.7	36.0	713.1	645.4	311.3
17000.0	551.2	-2	-16.0	29.2	702.7	644.0	329.6
17500.0	540.8	-1.5	-17.6	27.9	692.6	642.5	347.7
18000.0	530.5	-2.8	-19.4	26.5	682.8	640.9	9.1
18500.0	520.4	-4.1	-21.1	25.0	673.2	639.3	25.2
19000.0	510.5	-5.4	-22.9	23.5	663.7	637.7	22.0
19500.0	500.7	-6.2	-25.7	19.4	653.0	635.0	16.1
20000.0	491.0	-6.3	-26.7	18.0	640.8	636.5	359.3
20500.0	481.6	-6.5	-27.5	17.0	629.0	636.3	340.6
21000.0	472.2	-7.6	-28.4	17.0	619.2	635.0	321.7
21500.0	463.1	-8.7	-29.2	17.0	609.7	633.7	313.6
22000.0	454.1	-9.7	-30.1	17.0	600.2	632.4	309.5
22500.0	445.2	-10.8	-30.8	17.3	591.0	631.1	309.4
23000.0	436.5	-11.9	-31.4	17.9	581.9	629.8	308.0
23500.0	427.9	-13.1	-32.1	18.4	572.9	628.4	304.8

STATION ALTITUDE 4051.37 FEET <sup>ASL</sup>  
 19 JUNE 81 1530 HRS MDT  
 ASCENSION NO. 129

UPPER AIR DATA  
 1700180129  
 LC-37  
 TABLE 10 CON'T

GEOGRAPHIC COORDINATES  
 32°40'17" LAT DEG  
 106.31232 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEWEPOINT DEGREES CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	DIRECTION DEGREES (TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
24000.0	419.5	-14.2	-32.7	19.0	564.1	627.0	301.8	10.1
24500.0	411.1	-15.6	-33.9	19.0	555.9	625.3	299.4	10.5
25000.0	402.9	-17.0	-35.1	19.0	547.8	623.6	301.5	10.8
25500.0	394.7	-18.3	-35.7	20.0	539.4	622.0	305.5	11.0
26000.0	386.6	-19.6	-36.0	21.5	531.0	620.5	312.5	11.2
26500.0	378.7	-20.8	-36.4	23.0	522.7	618.9	321.9	11.6
27000.0	371.0	-22.1	-36.9	24.6	514.6	617.4	329.6	12.3
27500.0	363.4	-23.4	-37.4	26.1	506.6	615.8	334.6	13.0
28000.0	355.9	-24.6	-37.9	27.6	498.8	614.2	338.9	13.6
28500.0	348.6	-25.9	-38.5	29.1	491.0	612.7	341.3	12.7
29000.0	341.5	-27.1	-39.1	30.7	483.5	611.1	344.0	11.7
29500.0	334.3	-28.2	-40.2	30.5	475.4	609.8	342.8	12.4
30000.0	327.3	-29.2	-41.3	29.8	467.3	608.5	340.8	13.5
30500.0	320.4	-30.2	-42.4	29.1	459.3	607.3	338.3	16.1
31000.0	313.6	-31.2	-43.5	28.4	451.5	606.0	336.4	18.8
31500.0	307.0	-32.2	-44.6	27.7	443.8	604.7	330.8	19.8
32000.0	300.5	-33.2	-45.7	27.1	436.2	603.5	325.9	21.0
32500.0	294.0	-34.4	-47.0	26.3	428.9	602.0	323.5	21.1
33000.0	287.7	-35.6	-48.2	25.6	421.8	600.5	322.1	20.3
33500.0	281.5	-36.8	-50.0	23.5**	414.8	599.0	326.3	15.7
34000.0	275.3	-38.4	-57.8	10.9**	408.6	596.9	331.0	12.2
34500.0	269.3	-40.0			402.3	594.9	330.3	11.3
35000.0	263.4	-41.4			395.3	593.5	327.4	11.3
35500.0	257.5	-42.1			388.4	592.1	321.4	13.3
36000.0	251.8	-43.2			381.6	590.7	316.5	14.5
36500.0	246.2	-44.1			374.5	589.6	319.3	14.0
37000.0	240.7	-44.9			367.3	588.5	320.2	13.7
37500.0	235.3	-45.7			360.3	587.5	321.2	13.6
38000.0	230.0	-46.5			353.5	586.5	318.2	13.5
38500.0	224.7	-47.3			346.6	585.5	309.4	13.9
39000.0	219.6	-48.1			339.9	584.4	303.4	14.5
39500.0	214.6	-48.9			333.4	583.4	300.5	15.2
40000.0	209.7	-49.7			326.9	582.3	303.4	16.2
40500.0	204.9	-50.6			320.6	581.2	311.7	17.5
41000.0	200.2	-51.4			314.5	580.2	312.2	18.9
41500.0	195.6	-52.6			308.9	578.5	304.6	20.3
42000.0	191.0	-53.9			303.5	576.8	302.4	21.8
42500.0	186.5	-54.8			297.5	575.7	306.7	23.3
43000.0	182.1	-55.5			291.5	574.8	310.3	24.1
43500.0	177.8	-56.2			285.6	573.8	313.8	23.2

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 4051.37 FEET MSL  
19 JUNE 81 1530 HRS MDT  
ASCENSION NO. 129

UPPER AIR DATA  
1700180129  
LC-37

GEODETIC COORDINATES  
32°40'17.5" LAT DEG  
106°31'23.2" LON DEG

TABLE 10 CON'T

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREESES	DEWPOINT DEGREESES	REL.HUM. PERCENT	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	INDEX OF REFRACTION
GEOMETRIC ALTITUDE MSL FEET	PRESSURE	TEMPERATURE	DEWPOINT	DENSITY GM/CURRIC METER	SPEED OF SOUND KNOTS	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
44000.0	173.6	-56.9		279.8	572.8	316.3	22.3
44500.0	169.5	-57.7		274.1	571.9	311.2	20.8
45000.0	165.5	-58.7		268.9	570.4	305.2	19.5
45500.0	161.5	-60.3		264.4	568.4		1.000059
46000.0	157.7	-61.6		259.7	566.6		1.000058
46500.0	153.8	-62.5		254.4	565.5		1.000057
47000.0	150.1	-63.5		249.2	564.4		1.000055

STATION ALTITUDE 4051.37 FEET MSL  
 19 JUNE 81 1530 HRS MDT  
 ASCENSION NO. 129

MANDATORY LEVELS

1700180129

LC-37

GEODETIC COORDINATES  
 32.40175 LAT DEG  
 106.31232 LON DEG

TABLE 11

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE			REL.HUM. PERCENT	WIND DATA	
		AIR DEGREES	DEWPNT CENTIGRADE	DIRECTION DEGREES (TN)		SPEED KNOTS	
850.0	4891.	34.1	4.8	16.	216.6	4.4	
800.0	6674.	29.4	1.5	17.	239.3	3.2	
750.0	8540.	24.3	-2.1	17.	276.4	1.6	
700.0	10499.	18.8	-6.0	18.	3.3	.5	
650.0	12556.	12.0	-10.0	20.	251.6	9.4	
600.0	14728.	5.6	-12.2	26.	261.1	8.2	
550.0	17036.	-3	-16.1	29.	331.4	8.8	
500.0	19508.	-6.2	-26.0	19.	15.3	9.0	
450.0	22197.	-10.2	-30.5	17.	309.5	10.2	
400.0	25135.	-17.5	-35.5	19.	302.9	10.9	
350.0	28364.	-25.6	-38.4	29.	340.8	12.9	
300.0	31972.	-33.5	-45.8	27.	325.8	21.0	
250.0	36082.	-43.6			318.8	14.4	
200.0	40921.	-51.4			312.2	18.9	
175.0	43728.	-56.7			316.2	22.7	
150.0	46855.	-63.3					

STATION ALTITUDE 3989.00 FEET MSL  
19 JUNE 81 1630 HRS MDT  
ASCENSION NO. 400

SIGNIFICANT LEVEL DATA  
17000±0100  
WHITE SATELLUS

EODETIC COORDINATES  
52.40043 LAT DEG  
106.37033 LON DEG

TABLE 12

PRESSURE GEOMETRIC MILLIBARS	ALTITUDE MSL FEET	TEMPERATURE DEGREES CENTIGRADE	R&L.HUM. PERCENT
876.6	3989.0	37.5	19.0
850.0	4910.0	34.6	19.0
769.0	7847.1	26.4	19.0
700.0	10522.8	17.2	21.0
634.4	13246.2	10.4	25.0
558.2	16686.6	.8	36.0
517.6	18661.2	-4.8	32.0
500.0	19556.1	-4.8	21.0
463.2	21516.7	-9.4	20.0
440.6	22784.1	-11.2	22.0
400.0	25195.2	-17.7	26.0
344.3	28825.3	-26.5	36.0
300.0	32061.2	-32.6	29.0
279.4	33693.7	-37.9	28.0
267.6	34667.5	-40.5	
250.0	36186.3	-43.0	
200.0	41045.4	-52.0	
150.0	47038.3	-62.6	

STATION ALTITUDE 3989.00 FEET MSL  
 19 JUNE 81 1630 HRS MDT  
 ASCENSION NO. 400

UPPER AIR DATA  
 17000020400  
 WHITE SANUS  
 TABLE 13

GEOGRAPHIC COORDINATES  
 32°40.043 LAT DEG  
 106.37033 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREE CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SOUND KNOTS	DIRECTION DEGREES (TN)	WIND SPEED KNOTS	INDEX OF REFRACTION
3989.0	876.6	37.5	10.0	19.0	977.8	688.5	180.0	7.0
4000.0	876.3	37.5	9.9	19.0	977.6	688.4	180.0	7.0
4500.0	861.7	35.9	8.7	19.0	966.6	686.6	179.5	9.2
5000.0	847.4	34.3	7.4	19.0	955.6	684.7	179.2	11.3
5500.0	833.1	33.0	6.3	19.0	944.0	683.1	178.9	13.4
6000.0	819.0	31.6	5.1	19.0	932.5	681.4	178.6	15.5
6500.0	805.1	30.2	4.0	19.0	921.2	679.8	178.9	15.7
7000.0	791.5	28.8	2.9	19.0	910.0	678.1	179.2	14.2
7500.0	776.2	27.4	1.7	19.0	899.0	676.5	179.9	12.7
8000.0	764.9	25.9	.6	19.1	888.3	674.7	181.5	11.0
8500.0	751.6	24.2	-.5	19.5	878.0	672.7	183.7	9.4
9000.0	738.5	22.4	-1.7	19.9	867.9	670.7	186.5	8.0
9500.0	725.6	20.7	-2.9	20.2	858.0	668.7	189.9	7.1
10000.0	713.0	19.0	-4.0	20.6	848.1	666.7	194.2	6.3
10500.0	700.6	17.3	-5.2	21.0	838.4	664.7	199.2	5.3
11000.0	688.0	16.0	-5.8	21.7	827.1	663.2	205.6	4.0
11500.0	675.7	14.8	-6.5	22.4	815.9	661.7	217.3	2.9
12000.0	663.6	13.5	-7.1	23.2	804.8	660.3	227.3	3.5
12500.0	651.7	12.3	-7.7	23.9	793.9	658.8	233.4	4.0
13000.0	640.1	11.0	-8.4	24.6	783.2	657.3	224.3	6.2
13500.0	628.4	9.7	-8.9	25.8	772.6	655.8	218.9	8.1
14000.0	616.9	8.3	-9.4	27.4	762.1	654.2	218.0	7.7
14500.0	605.0	6.9	-9.9	29.0	751.8	652.5	216.4	7.5
15000.0	594.3	5.5	-10.4	30.6	741.7	650.9	229.6	8.2
15500.0	583.4	4.1	-11.0	32.2	731.7	649.2	247.5	10.9
16000.0	572.6	2.7	-11.6	33.8	721.9	647.6	255.8	12.2
16500.0	562.1	1.3	-12.3	35.4	712.3	645.9	265.2	11.3
17000.0	551.5	-.1	-13.6	35.4	702.6	644.2	285.0	9.4
17500.0	541.1	-1.5	-15.2	34.4	693.0	642.5	305.5	8.6
18000.0	530.9	-2.9	-16.8	33.3	683.6	640.8	326.7	8.8
18500.0	520.8	-4.3	-18.4	32.3	674.2	639.1	339.8	9.2
19000.0	510.9	-4.8	-20.5	27.8	662.6	638.5	351.2	10.0
19500.0	501.1	-4.8	-23.4	21.7	650.0	638.4	348.4	10.8
20000.0	491.4	-5.8	-24.7	20.8	640.0	637.1	346.0	11.6
20500.0	481.9	-7.0	-25.8	20.5	630.5	635.7	340.3	12.1
21000.0	472.6	-8.2	-27.0	20.3	621.1	634.3	333.9	12.6
21500.0	463.5	-9.4	-28.1	20.0	611.8	632.9	330.8	12.8
22000.0	454.4	-10.1	-28.3	20.8	601.5	632.0	329.0	12.8
22500.0	445.6	-10.8	-28.5	21.6	591.4	631.2	326.4	12.4
23000.0	436.8	-11.8	-29.0	22.4	581.9	630.0	323.4	11.9

STATION ALTITUDE 3989.00 FEET MSL  
19 JUNE 81 1630 HRS MDT  
ASCENSION NO. 400

UPPER AIR DATA  
1700020400  
WHITE SANDS

GEODETIC COORDINATES  
32.40043 LAT DEG  
106.37033 LON DEG

TABLE 13 CON'T

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	DEWPOINT DEGREES	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (IN)	INDEX OF REFRACTION
23500.0	426.1	-13.1	-29.7	23.2	573.3	628.3	316.4	11.1
24000.0	419.6	-14.5	-30.5	24.0	564.9	626.7	307.6	10.5
24500.0	411.3	-15.8	-31.3	24.8	550.6	625.1	303.3	10.3
25000.0	403.1	-17.2	-32.2	25.7	548.4	623.4	299.7	10.2
25500.0	395.0	-18.4	-32.8	26.8	540.0	621.9	304.9	10.1
26000.0	386.9	-19.7	-33.4	28.2	531.5	620.4	311.2	10.2
26500.0	379.0	-20.9	-33.9	29.6	523.2	618.9	319.4	10.5
27000.0	371.3	-22.1	-34.6	31.0	515.0	617.4	327.6	10.9
27500.0	363.7	-23.3	-35.2	32.3	506.9	615.9	332.4	10.5
28000.0	356.2	-24.5	-35.9	33.7	499.0	614.4	336.4	9.7
28500.0	349.0	-25.7	-36.6	35.1	491.2	612.9	341.0	9.9
29000.0	341.7	-26.8	-37.4	35.6	483.2	611.5	345.0	10.9
29500.0	334.6	-27.8	-38.6	34.5	474.9	610.3	346.8	12.5
30000.0	327.5	-28.7	-39.7	33.5	466.7	609.1	346.5	14.7
30500.0	320.6	-29.7	-40.9	32.4	458.6	608.0	347.4	15.6
31000.0	313.9	-30.6	-42.0	31.3	450.7	606.8	349.4	15.5
31500.0	307.3	-31.5	-43.2	30.2	442.9	605.6	353.7	14.2
32000.0	300.8	-32.5	-44.4	29.1	435.3	604.4	348.3	12.6
32500.0	294.3	-34.0	-45.9	28.7	428.7	602.5	40.0	10.3
33000.0	288.0	-35.6	-47.4	28.4	422.4	600.4	8.1	7.8
33500.0	281.8	-37.3	-48.9	28.1	416.1	598.4	9.5	6.1
34000.0	275.6	-38.7	-53.4	19.2**	409.6	596.5	10.0	4.6
34500.0	269.6	-40.1	-65.2	4.8**	402.9	594.8	358.1	4.3
35000.0	263.6	-41.0			395.7	593.5	344.8	4.7
35500.0	257.8	-41.9			388.3	592.5	341.7	6.1
36000.0	252.1	-42.7			381.1	591.4	341.4	7.7
36500.0	246.4	-43.6			373.9	590.3	341.1	9.7
37000.0	240.8	-44.5			366.9	589.1	340.8	11.8
37500.0	235.4	-45.4			360.1	587.9	337.8	13.1
38000.0	230.0	-46.4			353.3	586.7	334.0	14.0
38500.0	224.8	-47.3			346.7	585.5	329.1	14.3
39000.0	219.7	-48.2			340.2	584.3	322.7	14.0
39500.0	214.7	-49.1			333.9	583.1	316.2	14.3
40000.0	209.8	-50.1			327.7	581.9	310.4	15.5
40500.0	205.1	-51.0			321.6	580.7	306.0	16.8
41000.0	200.4	-51.9			315.6	579.5	305.7	18.2
41500.0	195.7	-52.8			309.4	578.3	305.5	19.6
42000.0	191.0	-53.7			303.3	577.1	309.0	20.0
42500.0	186.5	-54.6			297.3	575.9	312.6	20.4
43000.0	182.1	-55.5			291.5	574.7	315.1	19.4

\*\* AT LEAST ONE OF THE PREVIOUS ALTITUDES WAS UNKNOWN. THE ALTITUDE WAS USED IN COMPUTATION.

STATION ALTITUDE 3989.00 FEET MSL  
19 JUNE 81 1630 HRS MDT  
ASCENSION NO. 400

UPPER AIR DATA  
1700020400  
WHITE SANDS

TABLE 13 CON'T

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEPOINT DEGREES CENTIGRADE	REL.HUM. PERCENT	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES TN)	INDEX OF REFRACTION
43500.0	177.8	-56.4	285.7	573.5	317.4	17.8
44000.0	175.6	-57.3	280.1	572.3	318.3	15.8
44500.0	169.4	-58.2	274.6	571.1	315.5	15.1
45000.0	165.4	-59.1	269.3	569.9	311.3	10.4
45500.0	161.5	-60.0	264.0	568.7		
46000.0	157.7	-60.9	258.8	567.5		
46500.0	153.9	-61.8	253.7	566.3		
47000.0	150.3	-62.7	248.8	565.1		

STATION ALTITUDE 3,989.00 FEET MSL  
19 JUNE 81 1030 HRS MDT  
ASCENSION NO. 400

MANDATORY LEVELS  
1700020400  
WHITE SANDS

TABLE 14

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE			REL.HUM. PERCENT	WIND DATA	
		DEGREES	AIR DEGREES	DEWPNT CENTIGRADE		DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	4906.	34.6	74.6	19.	179.2	10.9	
800.0	6692.	29.6	3.6	19.	179.0	15.2	
750.0	8560.	24.0	-0.7	20.	184.0	9.2	
700.0	10512.	17.2	-5.3	21.	199.3	5.2	
650.0	12566.	12.1	-7.8	24.	234.1	4.1	
600.0	14742.	6.2	-10.1	30.	223.4	7.8	
550.0	17054.	-3	-13.8	35.	288.1	9.3	
500.0	19528.	-4.8	-23.7	21.	348.2	10.9	
450.0	22216.	-10.4	-28.4	21.	327.9	12.7	
400.0	25152.	-17.7	-32.5	26.	300.9	10.1	
350.0	28381.	-25.5	-36.5	35.	340.3	9.7	
300.0	31996.	-32.6	-44.5	29.	.9	12.5	
250.0	36106.	-43.0			341.3	8.3	
200.0	40944.	-52.0			305.7	18.2	
175.0	43750.	-57.0			319.0	16.7	
150.0	46909.	-62.8					

GEODLATIC COORDINATES  
32.40043 LAT DEG  
106.37033 LON DEG

STATION ALTITUDE 4051.37 FEET MSL  
19 JUNE 81 1730 HRS MDT  
ASCENSION NO. 130

SIGNIFICANT LEVEL DATA  
1700180130  
LC-37

TABLE 15

GEODETIC COORDINATES  
32°40'17.5 LAT DEG  
106°31'23.2 LON DEG

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE DEGREES CENTIGRADE	AIR DEWPOINT DEGREES CENTIGRADE	REL. HUM. PERCENT
673.3	4051.4	37.5	-6.1	6.0
850.0	4858.9	35.3	5.7	16.0
777.8	7470.9	28.0	-1	16.0
700.0	10486.7	19.0	-7.4	16.0
673.6	11563.1	15.5	-10.2	16.0
575.6	15841.9	2.8	-16.2	23.0
515.6	18730.9	-4.6	-22.5	23.0
500.0	19525.2	-5.2	-26.4	17.0
483.2	20405.8	-6.4	-26.0	16.0
459.6	21688.7	-8.3	-29.6	16.0
444.4	22543.7	-10.5	-31.4	16.0
421.8	23856.8	-13.5	-33.5	17.0
400.0	25174.6	-17.3	-35.3	19.0
350.8	28356.6	-26.1	-39.5	27.0
337.6	29267.4	-27.7	-39.9	30.0
318.2	30661.7	-30.0	-45.6	20.0
300.0	32033.8	-33.2	-49.3	18.0
269.2	34509.7	-39.2		
250.0	36168.3	-42.4		
240.8	36999.3	-44.5		
230.0	38008.6	-45.9		
200.0	41033.4	-51.9		
172.4	44175.2	-56.1		
149.4	47126.1	-63.4		

STATION ALTITUDE 4051.37 FEET MSL  
19 JUNE 81 1700 HRS MDT  
ASCENSION NO. 130

UPPER AIR DATA  
1700130130  
LC-37

TABLE 16

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREE CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	DIRECTION DEGREES (TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
4051.4	879.3	37.5	-6.1	6.0	977.7	687.2	200.0	4.9
4500.0	860.3	36.3	1.8	11.6	965.6	686.3	200.6	5.4
5000.0	845.9	34.9	5.4	16.0	952.8	685.1	201.1	6.0
5500.0	831.7	33.5	4.3	16.0	941.2	683.5	201.5	6.6
6000.0	817.7	32.1	3.1	16.0	929.9	681.9	201.9	7.2
6500.0	803.9	30.7	2.0	16.0	918.6	680.2	202.2	7.8
7000.0	790.3	29.3	.9	16.0	907.4	678.6	204.2	8.0
7500.0	777.0	27.9	-.2	16.0	896.5	677.0	207.8	7.9
8000.0	763.6	26.4	-1.4	16.0	885.5	675.2	211.5	7.8
8500.0	750.3	24.9	-2.6	16.0	874.7	673.5	213.3	7.9
9000.0	737.3	23.4	-3.8	16.0	864.0	671.7	214.5	8.1
9500.0	724.6	21.9	-5.0	16.0	853.5	670.0	215.6	8.3
10000.0	712.0	20.5	-6.2	16.0	843.1	668.2	214.0	8.0
10500.0	699.7	19.0	-7.4	16.0	832.8	666.5	210.6	7.4
11000.0	687.3	17.5	-8.7	16.0	822.8	664.6	206.7	6.9
11500.0	675.1	15.7	-10.0	16.0	812.9	662.6	204.5	6.4
12000.0	662.9	14.2	-10.7	16.7	802.4	660.9	204.7	5.8
12500.0	650.8	12.7	-11.3	17.5	791.9	659.2	217.9	5.8
13000.0	639.0	11.2	-11.9	18.4	781.6	657.4	239.3	7.1
13500.0	627.3	9.8	-12.6	19.2	771.4	655.7	243.9	8.5
14000.0	615.9	8.3	-13.3	20.0	761.4	654.0	244.5	9.8
14500.0	604.7	6.8	-14.1	20.8	751.6	652.2	252.1	10.0
15000.0	593.7	5.3	-14.9	21.6	741.8	650.5	261.1	10.2
15500.0	582.9	3.8	-15.7	22.4	732.3	648.7	278.4	9.8
16000.0	572.1	2.4	-16.5	23.0	722.6	647.0	294.6	10.0
16500.0	561.3	1.1	-17.7	23.0	712.3	645.5	309.1	10.2
17000.0	550.8	-.2	-18.8	23.6	702.2	644.0	317.3	10.6
17500.0	540.4	-1.4	-19.8	23.0	692.2	642.4	323.0	10.9
18000.0	530.2	-2.7	-20.9	23.6	682.4	640.9	338.6	11.4
18500.0	520.3	-4.0	-22.0	23.0	672.8	639.4	352.0	12.7
19000.0	510.3	-4.8	-23.7	21.0	662.0	638.4	354.5	13.9
19500.0	500.5	-5.2	-26.2	17.2	650.3	637.9	354.9	14.0
20000.0	490.9	-5.8	-27.3	16.5	639.4	637.1	346.9	14.6
20500.0	481.4	-6.5	-28.1	16.0	628.8	636.3	334.4	14.3
21000.0	472.1	-7.3	-28.7	16.0	618.3	635.4	330.2	14.6
21500.0	463.0	-8.0	-29.3	16.0	608.1	634.5	329.0	14.6
22000.0	454.0	-9.1	-30.2	16.0	598.7	633.2	322.4	13.8
22500.0	445.2	-10.4	-31.3	16.0	590.0	631.0	319.1	12.7
23000.0	436.4	-11.6	-32.1	16.3	581.2	630.1	315.4	11.5
23500.0	427.8	-12.9	-32.9	16.7	572.5	629.6	311.7	10.9

STATION ALTITUDE 4051.37 FEET MSL  
19 JUNE 81 1730 HRS MDT  
ASCENSION NO. 130

UPPER AIR DATA  
1700180130  
LC-37

TABLE 16 CON'T

GEODETIC COORDINATES  
32.40175 LAT DEG  
106.31232 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
24000.0	419.4	-14.2	-33.7	17.2	564.0	627.0	308.5	10.5
24500.0	411.0	-15.5	-34.4	18.0	555.6	625.4	307.7	10.2
25000.0	402.8	-16.8	-35.1	18.7	547.3	623.8	307.6	10.0
25500.0	394.7	-18.2	-35.7	19.8	539.1	622.1	309.2	10.2
26000.0	386.6	-19.6	-36.2	21.3	531.0	620.4	310.5	10.4
26500.0	378.7	-21.0	-36.8	22.3	523.0	618.7	311.2	11.0
27000.0	371.0	-22.3	-37.5	23.6	515.2	617.0	312.0	11.4
27500.0	363.4	-23.7	-38.2	24.8	507.5	615.3	314.7	11.3
28000.0	356.0	-25.1	-38.9	26.1	499.9	613.6	317.4	11.3
28500.0	348.7	-26.4	-39.5	27.5	492.1	612.1	329.3	11.8
29000.0	341.4	-27.2	-39.7	29.1	483.6	611.0	340.4	12.9
29500.0	334.3	-28.1	-40.7	28.3	475.1	609.9	353.6	15.0
30000.0	327.3	-28.9	-42.7	24.7	466.7	608.9	2.0	17.1
30500.0	320.4	-29.7	-44.9	21.2	458.5	607.9	5.6	17.9
31000.0	313.6	-30.8	-46.5	19.5	450.7	606.5	11.9	16.1
31500.0	307.0	-32.0	-47.8	18.8	443.3	605.1	25.6	12.3
32000.0	300.4	-33.1	-49.2	18.0	436.0	603.6	38.9	7.8
32500.0	293.9	-34.3	-52.0	14.6**	428.7	602.1	57.8	4.2
33000.0	287.6	-35.5	-55.3	11.0**	421.6	600.5	6.6	3.3
33500.0	281.4	-36.8	-59.5	7.3**	414.6	599.0	346.9	4.7
34000.0	275.3	-38.0	-65.5	3.7**	407.7	597.5	350.1	6.3
34500.0	269.3	-39.2	-90.6	.1**	401.0	595.9	349.5	6.8
35000.0	263.4	-40.1			393.8	594.7	347.8	7.0
35500.0	257.6	-41.1			386.7	593.4	345.6	7.1
36000.0	251.9	-42.1			379.7	592.2	343.8	7.3
36500.0	246.3	-43.2			373.2	590.7	348.8	9.3
37000.0	240.8	-44.5			366.9	589.1	351.4	11.3
37500.0	235.4	-45.2			359.7	588.2	349.2	13.2
38000.0	230.1	-45.9			352.7	587.3	346.5	14.5
38500.0	224.8	-46.9			346.1	586.0	338.7	13.2
39000.0	219.7	-47.9			339.7	584.7	329.2	12.5
39500.0	214.7	-48.9			333.4	583.4	319.0	12.7
40000.0	209.8	-49.9			327.3	582.2	315.3	14.5
40500.0	205.0	-50.8			321.2	580.9	314.5	16.8
41000.0	200.3	-51.8			315.3	579.6	316.2	19.9
41500.0	195.6	-52.5			308.9	578.7	315.5	22.6
42000.0	191.1	-53.2			302.6	577.8	310.0	24.0
42500.0	186.6	-53.9			296.4	576.9	312.0	22.5
43000.0	182.2	-54.5			290.4	576.0	320.0	19.5
43500.0	178.0	-55.2			284.1	575.1	324.1	19.6

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 4051.37 FEET : SL  
19 JUNE 61 1730 HRS MDT  
ASCENSION NO. 130

UPPER AIR DATA  
1700180130  
LC-37

TABLE 16 CON'T

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREE CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	INDEX OF REFRACTION	
44000.0	173.8	-55.9		278.7	574.3	328.0	20.0	1.000062
44500.0	169.7	-56.9		273.4	572.9	320.9	18.9	1.000061
45000.0	165.6	-58.1		268.4	571.2	311.9	18.2	1.000060
45500.0	161.7	-59.4		263.5	569.6			1.000059
46000.0	157.8	-60.6		258.6	568.0			1.000058
46500.0	154.0	-61.9		253.9	566.3			1.000057
47000.0	150.3	-63.1		249.3	564.6			1.000056

STATION ALTITUDE 4051.37 FEET MSL  
 19 JUNE 81  
 ASCENSION NO. 130

MANDATORY LEVELS  
 1700180130  
 LC-37

GEODETIC COORDINATES  
 32°40'17.5 LAT DEG  
 106°31'23.2 LONG DEG

TABLE 17

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE DEGREES	AIR DEWPOINT CENTIGRADE	REL.HUM. PERCENT	WIND DATA	
					DIRECTION DEGREES (TN)	SPEED KNOTS
850.0	4855.	35.3	5.7	16.	201.0	5.8
800.0	6644.	30.3	1.7	16.	202.3	7.9
750.0	8515.	24.9	-2.6	16.	213.4	7.9
700.0	10476.	19.0	-7.4	16.	210.7	7.4
650.0	12537.	12.6	-11.3	18.	220.2	5.9
600.0	14713.	6.2	-14.4	21.	255.4	10.2
550.0	17023.	-0.3	-18.8	23.	317.7	10.6
500.0	19497.	-5.2	-26.4	17.	355.0	15.0
450.0	22191.	-9.7	-30.7	16.	320.7	13.4
400.0	25132.	-17.3	-35.3	19.	308.1	10.1
350.0	28358.	-26.2	-39.5	27.	326.8	11.7
300.0	31969.	-33.2	-49.3	18.	39.6	7.6
250.0	36088.	-42.4			345.6	7.9
200.0	40933.	-51.9			316.3	20.0
175.0	43747.	-55.7			326.8	19.9
150.0	46916.	-63.2				

